# MATERIAL SAFETY DATA SHEET

## 1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Corn Products

Product Identification Number:

**LaCrosse Milling Company**
**P.O. Box 86**
**Cochrane, WI 54622-0086**

Emergency Phone Numbers: 7 am - 5 pm: 608-248-2222
800-441-5411
24 Hours: 608-248-2786
Fax: 608-248-2221

## 2. COMPOSITION/INFORMATION ON INGREDIENTS

| COMPONENT | CAS Number | % |
|---|---|---|
| Corn dust | Not available | 10-100 |

| EXPOSURE LIMITS | PEL (TWA) | PEL (STEL) | TLV (TWA) |
|---|---|---|---|
| Nuisance Particles | 10 $mg/m^3$ | N/A | 4 $mg/m^3$ |

## 3. HAZARD IDENTIFICATION

**EYES:** Contact may cause slight irritation due to mechanical action. Symptoms include redness and tearing.

**SKIN:** Contact with dust may cause slight irritation.

**INHALATION:** Prolonged inhalation of excessive amounts of nuisance dusts may effect respiratory system causing cough and aggravating previously existing respiratory disorders. Prolonged or repeated over exposure may cause lung damage.

**INGESTION:** None expected.

**CHRONIC:** None known.

**MEDICAL CONDITIONS AGRAVATED BY EXPOSURE:** Allergies, preexisting lung conditions such as asthma.

**PRIMARY ROUTES OF ENTRY:** Inhalation.

**POTENTIAL CARCINOGENS PRESENT (OSHA, IARC, NTP):** None known.



N/A = Not Applicable

# MATERIAL SAFETY DATA SHEET

Product Name: Corn Products

## 4. FIRST AID MEASURES

**EYES:** Flush with water for 15 minutes. Consult a physician if irritation persists.

**SKIN:** Wash with soap and water.

**INHALATION:** Move to fresh air.

## 5. FIRE FIGHTING MEASURES

**FLASH POINT:** N/A
**FLAMMABLE LIMITS:**
LFL: 55 $gm/m^3$
UFL: Unknown

**EXTINGUISHING MEDIA:** Foam, $CO_2$, dry chemical, water fog.

**SPECIAL FIRE FIGHTING PROCEDURES:** Do not use direct hose stream if dust can be dispersed into air. Dust dispersed by water stream in the presence of an ignition source could cause an explosion.

**FIRE AND EXPLOSION HAZARDS:** If improperly handled, stored, and/or exposed to an ignition source, this material may burn. Airborne dust in sufficient concentration when confined and exposed to a sufficient ignition source can explode.

## 6. ACCIDENTAL RELEASE MEASURES

**GENERAL:** ***Dust is explosive. Eliminate ignition sources.*** Use care to avoid creating dusty conditions. Sweep up and repackage or dispose of in accordance with local, state and federal regulations.

## 7. HANDLING AND STORAGE

**GENERAL:** May form flammable dust-air mixtures. Use handling practices that minimize dust generation and accumulation.

**STORAGE:** Store in a dry place.



N/A = Not Applicable

# MATERIAL SAFETY DATA SHEET

Product Name: Corn Products

## 8. EXPOSURE CONTROL/PERSONAL PROTECTION

**ENGINEERING CONTROLS:** Provide adequate general or local ventilation to keep dust levels below the exposure limits.

**RESPIRATORY PROTECTION:** Provide a NIOSH/MSHA approved respirator if exposure limits are exceeded.

**SKIN PROTECTION:** Clean body-covering as needed.

**EYE PROTECTION:** Safety glasses or goggles.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

| | |
|---|---|
| **APPEARANCE:** | yellow: whole, cracked or rolled grains or powder |
| **ODOR:** | Characteristic |
| **SPECIFIC GRAVITY:** | No information available |
| **% VOLATILE:** | N/A |
| **MELTING POINT:** | N/A |
| **BOILING POINT:** | N/A |
| **VAPOR PRESSURE:** | N/A |
| **VAPOR DENSITY:** | N/A |

## 10. STABILITY AND REACTIVITY

**GENERAL:** Stable

**REACTIVITY:** None

**INCOMPATIBLE MATERIALS AND CONDITIONS TO AVOID:**
Dusty conditions exceeding the Lower Flammable Limit (LFL). Ignition sources.

## 11. OTHER INFORMATION

Follow procedures specified in the National Fire Protection Association Codes and Standards for handling combustible dusts. Maintain good house keeping to avoid dust buildup.

Effective Date: May 4, 1993
Last Revision date: May 4, 1993



N/A = Not Applicable

# MATERIAL SAFETY DATA SHEET

## SECTION I – PRODUCT IDENTIFICATION

| SUPPLIER | |
|---|---|
| **NAME** | The National Biofuels Group Pty Ltd |
| **ADDRESS** | 16/33 Ryde Road, Pymble, NSW 2073, Australia |
| **TELEPHONE** | +61 2 9499 8291 |
| **PRODUCT** | |
| **NAME** | Soybean Meal |
| **DESCRIPTION** | Soybean protein isolate |
| **SYNONYMS** | Soymeal, soyameal, soybean flour, soy protein. |
| **CAS NUMBER** | 68308-36-1 |

## SECTION II – INGREDIENTS AND HAZARD CLASSIFICATION

**Ingredients** Soybean meal (100%)

**SARA Title III** Section 312 Extremely Hazardous Substances: None
Section 311/312 Hazardous Categories: Non-hazardous
Section 313 Toxic Chemicals: None

Not classified as hazardous according to NOHSC criteria.

## SECTION III – HEALTH INFORMATION

### EFFECTS OF OVEREXPOSURE

**Inhalation** May cause lung congestion if dust is breathed.

**Ingestion** None. Not harmful if swallowed.

**Eye contact** In the event of eye contact irrigate with water for 10 – 15 minutes. Exposure may result in mild irritation. Direct eye contact may result in pain, redness and lacrimation. Seek medical attention if symptoms persist.

**Skin contact** Seek medical attention if symptoms persist.

**Toxicological information** Not available

## SECTION IV – OCCUPATIONAL EXPOSURE LIMITS

**PEL**: None listed from OSHA.

**PELTLV**: None listed from ACGIH.

## SECTION V – EMERGENCY FIRST AID PROCEDURE

**FOLLOW STANDARD FIRST AID PROCEDURES**

**Ingestion** Do not induce vomiting. Give person one or two glasses of water to drink. If gastro-intestinal symptoms develop call physician or Poison Control Centre.

**Skin contact** Wash affected area with soap and water. Seek medical attention if irritation develops.

**Eye contact** Flush eyes with cool water for at least 15 – 20 minutes. Do not let person rub eyes. Seek medical attention if irritation develops.

**Inhalation** Remove person to fresh air. Seek medical attention if symptoms persist.

## SECTION VI – PHYSICAL PROPERTIES

| | | | |
|---|---|---|---|
| **Physical state** | Solid | **Vapour density** | N/A (Air = 1) |
| **Appearance** | Off-white to brown | **Evaporation rate** | N/A |
| **Water solubility** | N/A | **Flash point** | N/A |
| **Odour** | Odourless to mild | **Boiling point** | N/A |
| **Specific gravity** | N/A | **Melting point** | N/A |
| **pH value** | N/A | **Flammability limits** | Not known |
| **Vapour pressure** | N/A | **Molecular Weight** | N/A |

## SECTION VII – FIRE AND EXPLOSION HAZARDS

| | |
|---|---|
| **Flash point and method used** | N/A |
| **Auto-ignition temperature** | N/A |
| **Flammability** | Dust explosion conditions are unknown. |
| **Flammability limits** | Not known |
| **HFPA rating** | HEALTH: 0; FIRE: 0; REACTIVITY: 0 |
| **Extinguishing media** | Treat as Class A. Foam, dry chemical, carbon dioxide and water spray. |

**Special fire fighting procedures and precautions**: Slightly combustible. Suitable extinguishing agents are dry agent, carbon dioxide and foam. Fire fighters should use self-contained breathing apparatus to avoid exposure to smoke and fumes.

**Unusual fire & explosion hazards**: Toxic gases such as hydrocarbons and carbon oxides may evolve when heated.

## SECTION VIII – REACTIVITY

| | |
|---|---|
| **Stability** | Stable |
| **Hazardous polymerization** | Will not occur |
| **Materials to avoid** | Strong oxidizing agents and moisture. Material is hygroscopic. |
| **Hazardous decomposition products** | Combustion produces $CO_2$, CO and thick smoke. |
| **Conditions to avoid** | None known |

## SECTION IX – PERSONAL PROTECTION/EXPOSURE CONTROL

| | |
|---|---|
| **Respiratory protection** | Always ensure that workplace has adequate ventilation. In case of dust formation, wear appropriate respiratory protective equipment as determined by expert opinion. |
| **Skin protection** | None. |
| **Eye protection** | Always wear approved safety glasses when working. Full face protective shields can be worn to avoid contact with face. Eye wash stations should be provided and regularly inspected. |
| **Footwear** | Wear appropriate footwear as specified by workplace regulations. |
| **Additional measures** | Practice good personal hygiene by washing exposed skin regularly with soap and water. Wash hand before consuming any food or drink. |

## SECTION X – ENVIRONMENTAL PROTECTION

| | |
|---|---|
| **Environmental precautions** | None. Avoid excessive dust emissions. |
| **Spill or leak precautions** | Clean up spilled material using broom or vacuum cleaner. |
| **Waste disposal** | Dispose spilled or contaminated material according to federal, state and/or local requirements. Do not release into drains. |

## SECTION XI – TRANSPORT INFORMATION

| | |
|---|---|
| **Transport information** | Not classified as Dangerous |
| **U.N. Hazard class** | Not applicable. |
| **Shipping classification** | Not regulated |
| **Shipping name** | Not applicable |

| | |
|---|---|
| **Identification number** | Not applicable |

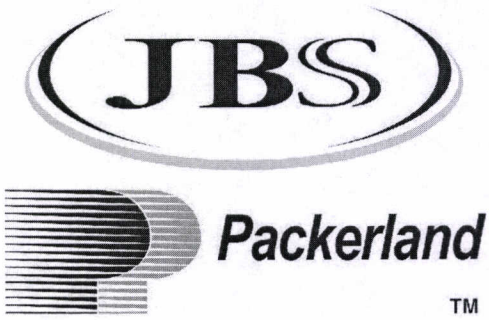
## SECTION XII – HANDLING, STORAGE AND USAGE

| | |
|---|---|
| **Storage temperature** | N/A |
| **General** | Store away from excessive heat, ignition sources (sparks and flames) and strong oxidising agents. Store in a cool, dry and well-ventilated environment. Do not store in direct sunlight. |

## SECTION XIII – DISCLAIMER

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any other process. The stated MSDS is reliable to the best of the company's knowledge and believed accurate as of the date indicated. However, no representation, warranty or guarantee of any kind, express or implied, is made as to its accuracy, reliability or completeness and we assume no responsibility for any loss, damage or expense, direct or consequential, arising out of use. It is the user's responsibility to satisfy himself as to the suitableness and completeness of such information for his own particular use.

(19 March 2008)




**Material Safety Data Sheet**
**Identity: Meat Bone Meal**

## Section I - General Information

Manufacturer's Name:
JBS Packerland
651 S. 91st Ave.
Tolleson, AZ 85353
Emergency Telephone Number: (623) 936-7177
Telephone Number for Information: (623) 936-7177

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## Section II - Hazardous Ingredients/Identity Information

Hazardous Components - Contains no Hazardous Components as described in the Hazard Communication Standard
Substance - Dehydrated Beef By-products CAS Number N/A
Trade Names - Meat Meal, Meat By-product Meal, Meat & Bone Meal
Chemical Family: Protein Supplement with associated fatty and mineral components
Molecular Formula: N/A Molecular Weight: N/A
CERCLA Ratings (Scale 0-3): Health = 0 Fire = 2 Reactivity = 0 Persistence = 1

### Components and Contaminants

Components: Dehydrated Beef Protein and Bone
Other Contaminants: None Exposure Limits: N/A

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## Section III - Physical/Chemical Characteristics

Boiling Point: Decomposes Specific Gravity (H20 = 1): 0.50 avg.
Vapor Pressure (mm Hg): N/A Melting Point: Decomposes
Vapor Density (Air = 1): N/A Evaporation Rate: 0 (Butyl Acetate = 1)
Solubility in Water: Insoluble
Appearance and Odor: Light tan to medium brown solid, characteristic odor

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## Section IV - Fire and Explosion Hazard Data

Flash Point (Method Used): 460° F, Open Cup (fat content only)
Flammable Limits: N/A LEL: N/A UEL: N/A
Extinguishing Media: Type A or B
Special Fire Fighting Procedures: None
Unusual Fire and Explosion Hazards: None

## Section V - Reactivity Data

Reactivity: Stable
Conditions to Avoid: None
Incompatibility (Materials to Avoid): None
Hazardous Decomposition or Byproducts: None
Hazardous Polymerization: Will Not Occur

---

## Section VI - Health Hazard Data

Inhalation: N/A
Skin Contact: N/A
Eye Contact: N/A
Ingestion: N/A
Emergency and First Aid Procedures: Wash well
Carcinogenicity: None NTP? N/A IARC Monographs: N/A
OSHA Regulated: No

---

## Section VII - Precautions for Safe Handling and Use

Steps to be taken in case material is released or spilled - Sweep up spilled meal and dispose of in sanitary landfill or contact JBS Packerland concerning reprocessing.
Waste Disposal Method - Send to sanitary landfill or contact JBS Packerland as above.
Precautions To Be Taken in Handling and Storing - None
Other Precautions - None

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## Section VIII - Control Measures

Respiratory Protection - None
Ventilation - Ventilate bins before entering.
Protective Gloves - Standard
Eye Protection - Standard
Other Protective Clothing or Equipment - Standard
Work/Hygienic Practices - Standard

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The information provided is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes.

# ❖Superior Marble

2 North Mesquite Road
Superior, Arizona 85242
Telephone: 520-689-8000
Facsimile: 520-689-5555

## Material Safety Data Sheet

### SECTION 1 - PRODUCT IDENTIFICATION AND USE

**Product: Crushed Limestone** **STCC #: 32 959 60** **CAS #: 1317-65-3**

**Chemical Formula:** Complex mixture; naturally variable composition of primarily calcium and magnesium carbonates

**Trade Names:** Quarry Sand, Marble Sand, Limestone Sand

**Product Uses:** Various

**Manufacturer's Name:** Superior Marble, LLC
**Address:** P.O Box 1905, Superior Arizona 85273
**Telephone:** 520-689-8000

### SECTION 2 - HAZARDOUS INGREDIENTS

| Ingredients: | % by Wt: | CAS #: | Exposure Limits: |
|---|---|---|---|
| Limestone* | 100 | 1317-65-3 | ACGIH TLV: Total dust, 10 mg/m$^3$ TWA<br>OSHA PEL: Total dust, 15 mg/m$^3$ TWA Respirable dust, 5 mg/m$^3$ TWA |
| *Silica, quartz | Variable; typically 0.3 – 0.4 | 14808-60-7 | ACGIH TLV: Respirable dust. O.1 mg/m$^3$ TWA<br>OSHA PEL: Respirable dust, 0.1 mg/m$^3$ TWA |

Hazardous Materials Identification System (National Paint and Coatings Association)

| Category | Rating |
|---|---|
| Health | 1 * |
| Flammability | 0 |
| Reactivity | 0 |
| Personal Protection | |

### SECTION 3 – PHYSICAL CHARACTERISTICS

**Density:** 2.7 g/ml
**Appearance and Odor:** Angular white, tan and / or gray stone of variable sizes. No odor
**Solubility in Water:** Negligible

### SECTION 4 – FIRE AND EXPLOSION DATA

**Flash point:** Non – Flammable **Special Fire Fighting Procedures:** None **Unusual Fire and Explosion Hazards:** None

### SECTION 5 – REACTIVITY DATA

**Stability:** Stable
**Hazardous Polymerization:** Will not occur
**Reactivity in Water:** None
**Hazardous Decomposition Products:** Respirable dust particles including silica may be generated via abrasion during handling. Thermal oxidative decomposing can produce calcium oxide.
**Incompatibility (Materials to Avoid):** Reacts with acids to liberate carbon dioxide. Ignites on contact with fluorine. Also incompatible with alum and ammonium salts.

## SECTION 6 – TOXICOLOGICAL PROPERTIES AND HEALTH HAZARD DATA

**EFFECTS AND HAZARDS OF ACUTE EXPOSURE:**

**INHALATION:** Can be irritating to the respiratory tract. Symptoms include sneezing and slight nose irritation.
**EYE CONTACT:** Mild irritation. Symptoms include watering and irritation.
**SKIN CONTACT:** Repeated or prolonged exposure to limestone dust may have a drying effect on the skin. May cause mild skin irritation Symptoms include redness and irritation.

**EFFECTS AND HAZARDS OF CHRONIC EXPOSURE:**

There are no reported health effects associated with the repeated or prolonged exposure to pure calcium carbonates. Chronic exposure to respirable limestone dust at concentrations exceeding occupational exposure limits may increase the risk of developing pneumoconiosis (lung disease).

These products contain crystalline silica (quartz) as an impurity. Prolonged exposure to respirable crystalline silica dust at concentrations exceeding occupational exposure limits may increase the risk of developing a disabling lung disease called Silicosis. IARC has concluded that there is sufficient evidence in humans for the carcinogenicity of inhaled crystalline silica in the form of quartz from occupational sources.

## SECTION 7 – PREVENTIVE MEASURES

**HANDLING :** Engineering control methods such as ( but not limited to ) process enclosure and exhaust ventilation may be necessary to control exposures. Supply sufficient replacement air to make up for air removed by exhaust systems. If engineering controls and work practices are not effective in controlling exposures, appropriate personal protective equipment including a NIOSA / OSHA approved respirator should be worn.

When prolonged or repeated contact with hands is likely, the use of appropriate gloves is recommended.

Appropriate eye protection should be worn

**SPILL AND LEAK PROCEDURES:** Measures may be necessary to reduce and protect against airborne dust during cleanup operations, including wetting spilled material and / or use of respiratory protective equipment.

**DISPOSAL:** From a waste perspective, these products are not considered hazardous and may be disposed of as a solid waste in accordance with applicable federal, state, provincial and local regulations.

## SECTION 8 – FIRST AID MEASURES

**INHALATION :** Remove to fresh air. Obtain medical advice if required.
**EYE CONTACT :** Immediately flush the contaminated eye(s) with lukewarm gently flowing water, for 10 minutes, holding the eyelid(s) open. If irritation persists, obtain medical advice immediately.
**SKIN CONTACT :** Wash with water and mild soap. If irritation occurs, obtain medical advice immediately.

## SECTION 9 – PREPARATON INFORMATION FOR MATERIAL SAFETY DATA SHEET

**Prepared November 2001**
The information contained herein has been compiled by Superior Marble, LLC, from sources it considers reliable, and is accurate to the best of Superior Marble's knowledge. Before using the product identified hereon, the foregoing MSDS and any product label should be read carefully. The information contained herein relates only to the product identified hereon, and does not relate to its use in combination with any other material or in any process. Customers are encouraged to conduct their own tests concerning the use of the product identified hereon as each customer's manner and conditions of use and handling may involve additional considerations. Superior Marble, LLC assumes and shall incur no liability for any damages, losses, injuries, costs or consequential damages that may result from the use or misuse of the product identified hereon, and the recipient assumes all of such liability.

# Baker Commodities Inc.

## Material Safety Data Sheet

May be used to comply with OSHA's Hazard Communication Standard, 29 CFR 1910.1200. Standard must be consulted for specific requirements.

## U.S. Department of Labor

Occupational Safety and Health Administration(Non-Mandatory Form) Form Approved OMB No. 1218-0072

| IDENTITY *(As Used on Label and List)* | Note: Blank spaces are not permitted. If any item is not applicable, or no information is available, the space must be marked to indicate that. |
|---|---|
| **ACTION FAT**<br>*(Yellow Grease, Recycled Resaurant Grease)* | |

### Section I

| | |
|---|---|
| Manufacturer's Name<br>**BAKER COMMODITIES, INC.** | Emergency Telephone Number<br>**(323) 268-2801** |
| Address *(Number, Street, City, State, and ZIP Code)*<br>***4020 Bandini Blvd.***<br>***Vernon, CA 90058*** | Telephone Number for Information<br>**(323) 268-2801** |
| | Date Prepared<br>**March 22, 2006** |
| | Signature of Preparer *(optional)*<br>Doug Smith |

### Section II - Hazard Ingredients/Identity Information

| Hazardous Components (Specific Chemical Identity; Common Name(s)) | OSHA PEL | ACGIH TLV | Other Limits Recommended | %*(optional)* |
|---|---|---|---|---|
| **GLYCERYL ESTERS OF FATTY ACIDS** | **N/A** | **N/A** | | |
| | | | | |

### Section III - Physical/Chemical Characteristics

| | | | |
|---|---|---|---|
| Boiling Point | **708 F.** | Specific Gravity ($H_2O$ = 1) **130 F.** | **0.898** |
| Vapor Pressure (mm Hg.) | **760mm** | Melting Point | **UNKNOWN** |
| Vapor Density (AIR = 1) | **UNKNOWN** | Evaporation Rate (Butyl Acetate = 1) | **N/A** |
| Solubility in Water<br>**NEGLIGIBLE** | | | |
| Appearance and Odor | | | |

# Baker Commodities Inc.

| |
|---|
| **YELLOW/REDDISH IN COLOR WITH A SLIGHT FATTY ODOR** |

## Section IV - Fire and Explosion Hazard Data

| Flash Point (Method Used) | Flammable Limits | LEL | UEL |
|---|---|---|---|
| **CLOSED CUP 475 F.** | **UNKNOWN** | **N/A** | N/A |
| Extinguishing Media<br><br>**DRY CHEMICAL (A, B, C)** | | | |
| Special Fire Fighting Procedures<br><br>**SMOTHER THE FIRE AND DO NOT USE WATER** | | | |
| Unusual Fire and Explosion Hazards<br>**NONE** | | | |

## Section V - Reactivity Data

| Stability | Unstable | | Conditions to Avoid |
|---|---|---|---|
| Stable | Stable | **XX** | **N/A** |
| Incompatibility *(Materials to Avoid)*<br>**N/A** | | | |
| Hazardous Decomposition or Byproducts<br>**N/A** | | | |

| Hazardous Polymerization | May Occur | | Conditions to Avoid |
|---|---|---|---|
| Will Not Occur | Will Not Occur | **XX** | **N/A** |

## Section VI - Health Hazard Data

| Route(s) of Entry: | Inhalation? **NO** | Skin? **N/A** | Ingestion? **YES** |
|---|---|---|---|
| Health Hazards *(Acute and Chronic)*<br>**N/A** | | | |
| Carcinogenicity: **N/A** | NTP? **N/A** | IARC Monographs? **N/A** | OSHA Regulated? **N/A** |
| Signs and Symptoms of Exposure **N/A** | | | |

# Baker Commodities Inc.

| |
|---|
| Medical Conditions<br>Generally Aggravated by Exposure **N/A** |
| Emergency and First Aid Procedures **N/A** |

## Section VII - Precautions for Safe Handling and Use

| |
|---|
| Steps to Be Taken in Case Material is Released or Spilled |
| **WILL BECOME SOLID AS IT COOLS, BUT ON HOT SUMMER DAYS WILL STAY LIQUID. USE SAWDUST TO FORM A DAM AND ABSORB THE GREASE** |
| Waste Disposal Method |
| **RETURN TO PLANT FOR RECYCLING** |
| Precautions to Be taken in Handling and Storing **OPERATORS SHOULD USE GLOVES AND SAFETY GLASSES WHEN HANDLING. DO NOT EXPOSE TO OPEN FLAME OR WELDING ARC.** |
| Other Precautions **N/A** |

## Section VIII - Control Measures

| | | |
|---|---|---|
| Respiratory Protection *(Specify Type)* ***N/A*** | | |
| Ventilation **N/A** | Local Exhaust **N/A** | Special **N/A** |
| | Mechanical *(General)* ***N/A*** | Other **N/A** |

| | |
|---|---|
| Protective Gloves **YES , GLOVES SHOULD PROTECT FROM HEAT, EXPOSURE TO SKIN, AND PROVIDE GRIP** | Eye Protection<br>**SAFETY GLASSES** |
| Other Protective Clothing or Equipment **USE OF FACE SHIELD, SPLASH GOGGLES, AND APRON IF VERY HOT** | |
| Work/Hygienic Practices **WASH EXPOSED SKIN WITH WARM WATER AND SOAP TO REMOVE FROM SKIN, DO NOT INGEST NOT FOR HUMAN CONSUMPTION.** | |

# MATERIAL SAFETY DATA SHEET

**U.S. DEPARTMENT OF LABOR, Occupational Safety and Health Administration Form Approved OMB No. 1218-0072, may be used to comply with OSHA's Hazard Communication Standard 29 CFR 1910.1200**

## SECTION I

**PRODUCT IDENTITY :** (As used on Label and List)
**SALT, SODIUM CHLORIDE, HALITE, TRU-FLO, TRU-SOFT, COM-PAC, MELT AWAY, AQUASALT**
**CAS # 7647-14-5**
**Emergency Telephone Number :** (713)-877-2600
**Telephone Number For Information :** (713)-877-2600

## SECTION II - HAZARDOUS INGREDIENTS / IDENTITY INFORMATION

Hazardous Components (Specify Identity; Common Name(s) OSHA PEL ACGIH TLV OTHER LIMITS RECOMMENDED % (Optional)
Sodium Chloride (NaCl) is not considered a hazardous chemical as USC interprets the OSHA Hazard Communication Standard 29 CFR 1910.1200. The information on this form has been prepared with reasonable care. USC extends no warranties, makes no representations and assumes no responsibilities as to the accuracy or suitability of such information for application to purchaser's intended purposes of or consequences of its use.

## SECTION III - PHYSICAL / CHEMICAL CHARACTERISTICS

| | | | |
|---|---|---|---|
| **Boiling Point :** | 1413 $^{O}C$ | **Specific Gravity ($H_2O$ = 1) :** | 2.165 |
| **Vapor Pressure (mm Hg.) :** | 1 MM @ 855$^{O}$ | **Melting Point :** | 800$^{O}C$ |
| **Vapor Density (AIR = 1) :** | N/A | **Evaporation Rate (Butyl Acetate = 1) :** | N/A |
| **Solubility in Water :** | Appreciable (26.43% by weight at 20 Deg Celsuis) | | |
| **Appearance and Odor :** | Bluish White, Crystaline, Odorless Solid | | |

## SECTION IV - FIRE AND EXPLOSION HAZARD DATA

| | | |
|---|---|---|
| **Flash Point (Method Used) :** | N/A | |
| **Flammable Limits :** | **LEL :** N/A | **UEL :** N/A |
| **Extinguishing Media :** | Material is non-flammable. Use Media appropriate for surrounding materials. | |
| **Special Fire Fighting Procedures :** | None | |
| | None | |

## SECTION V - REACTIVITY DATA

| | | | |
|---|---|---|---|
| **Stability :** | Stable | **Conditions to Avoid :** | None |
| **Incombatibility (Materials to Avoid):** | Bromine Trifluoride, Lithium | | |
| **Hazardous Decomposition or Byproducts :** | When heated to decomposition (above 1413 degree celsius) may emit toxic fumes of Na2O and Cl2. | | |
| **Hazardous Polymerization :** | May Not Occur | **Conditions to Avoid :** | None |

## SECTION VI - HEALTH HAZARD DATA

**Route(s) of Entry :**

| | | | |
|---|---|---|---|
| **Eye ?** Yes | **Inhalation ?** Yes | **Skin ?** Yes | **Ingestion ?** Yes |
| **Health Hazards (Acute and Chronic) :** | | | |
| **Carcinogenicity ?** No | **NTP ?** No | **IARC Monographs ?** No | **OSHA Regulated ?** No |
| **Signs and Symptoms of Exposure :** | Listed Above | | |
| **Medical Conditions Generally Aggravated by Exposure :** | No Information | | |
| **Emergency and First Aid Procedures :** | Ingestion : Drink large amounts of water; Inhalation : Remove to fresh air; Skin Contact: Wash with soap and water; Eye Contact: Flush with water for 15 minutes. Get Medcal Attention. | | |

## SECTION VII - PRECAUTIONS FOR SAFE HANDLING AND USE

| | |
|---|---|
| **Steps to be Taken in Case Material is Released or Spilled :** | No Special requirements - Check your state for reportable quantity requirements. |
| **Waste Disposal Method :** | Dispose of in accordance to local state and federal regulations. |
| **Precautions to be taken in Handling and Storing :** | Transport in dry equipment. Store in dry location. |
| **Other Procedures :** | None. |

## SECTION VIII - CONTROL MEASURES

| | | | |
|---|---|---|---|
| **Respiratory Protection (Specify Type) :** | None Required - Nuisance dust mask for personal comfort. | | |
| **Ventilation :** | Local Exhaust | **Special :** | None |
| **Mechanical :** | Satisfactory | **Other :** | None |
| **Protective Gloves :** | Work Gloves | **Eye Protection :** | Goggles |
| **Other Protective Clothing or Equipment :** | None required | | |
| **Work / Hygienic Practices :** | | | |

# DSM Material Safety Data Sheet

**Material Name: Trace Mineral Premix** **Product ID: NP17158**

## *** Section 1 - Chemical Product and Company Identification ***

**Manufacturer Information**

DSM Nutritional Products, Inc.
45 Waterview Blvd
Parsippany , NJ 07054-1298

Phone: (973) 257-1063

Emergency # (800) 424-9300 (24 Hr CHEMTREC)

## *** Section 2 - Hazards Identification ***

**Emergency Overview**

Although this product has not been tested in accordance with ASTM E-27.05, finely divided organic dust suspended in air can form explosive mixtures. Contact with this material can cause irritation to the skin, eyes and mucous membranes. Product contains a component which is very toxic to aquatic life.

**Potential Health Effects: Eyes**

May cause eye irritation.

**Potential Health Effects: Skin**

May cause skin irritation.

**Potential Health Effects: Ingestion**

Ingestion of large amounts can cause gastrointestinal irritation, nausea, vomiting and diarrhea.

**Potential Health Effects: Inhalation**

May cause respiratory irritation.

**HMIS Ratings: Health:** 0 **Fire:** 0 **Reactivity:** 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard

## *** Section 3 - Composition / Information on Ingredients ***

| CAS # | Component | Percent |
|---|---|---|
| 7720-78-7 | Ferrous sulfate | 15-40 |
| 1344-43-0 | Manganese oxide (MnO) | 10-30 |
| 1317-65-3 | Calcium carbonate | 10-30 |
| 1314-13-2 | Zinc oxide | 10-30 |
| 7758-98-7 | Cupric sulfate | 3-7 |
| 8012-95-1 | Oil mist, mineral | 0.5-1.5 |

**Component Information/Information on Non-Hazardous Components**

This product is considered not hazardous under 29 CFR 1910.1200 (Hazard Communication).

This product is not regulated according to criteria of the Canadian Controlled Products Regulations.

## *** Section 4 - First Aid Measures ***

**First Aid: Eyes**

Flush with water for 15 minutes while holding the eyelids wide open. Seek medical attention if irritation develops.

**First Aid: Skin**

Immediately take off all contaminated clothing. For skin contact, wash immediately with soap and water. Do not use solvents to remove product residues from skin. If irritation persists, get medical attention.

**First Aid: Ingestion**

Product is not considered toxic in small amounts. Call a physician if symptoms develop or persist. If ingestion of a large amount does occur, seek medical attention.

**First Aid: Inhalation**

Move person to non-contaminated air. Call a physician if symptoms develop or persist.

**First Aid: Notes to Physician**

Provide general supportive measures and treat symptomatically.

## *** Section 5 - Fire Fighting Measures ***

**General Fire Hazards**

See Section 9 for Flammability Properties.

Dusts may form an explosive mixture with air.

**Hazardous Combustion Products**

Hazardous combustion products may include carbon monoxide, carbon dioxide and hydrocarbon fragments.

**Extinguishing Media**

Dry chemical, foam, carbon dioxide, water fog.

**Specific Hazards Arising From the Chemical**

Substance is hazardous for water: contain fire-fighting wastewater.

**Fire Fighting Equipment/Instructions**

Fire fighters should wear full-face, self contained breathing apparatus and impervious protective clothing. Fire fighters should avoid inhaling any combustion products.

**NFPA Ratings: Health:** 0 **Fire:** 0 **Reactivity:** 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

## * * * Section 6 - Accidental Release Measures * * *

**Containment Procedures**

Stop the flow of material, if this is without risk.

**Environmental Precautions**

Block any potential routes to water systems.

**Clean-Up Procedures**

Wear appropriate protective equipment and clothing during clean-up. Avoid the generation of dusts during clean-up. If sweeping of a contaminated area is necessary use a dust suppressant agent which does not react with the product. Put material in suitable, covered, labeled containers. Dispose of spent absorbent in an approved industrial waste landfill.

**Evacuation Procedures**

Isolate area. Keep unnecessary personnel away. Persons not wearing appropriate protective equipment should be excluded from area of spill until clean-up has been completed.

**Special Procedures**

Do not allow product to enter sewer or waterways. Regulations vary. Consult local authorities before disposal. If sweeping of a contaminated area is necessary use a dust suppressant agent which does not react with the product.

## * * * Section 7 - Handling and Storage * * *

**Handling Procedures**

Product should be processed in closed systems, if possible superposed by inert gas. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Avoid dust formation; product is a dust explosion hazard. Wash thoroughly after handling.

**Storage Procedures**

Keep the container in a well-ventilated place. Keep the container tightly closed and dry.

## * * * Section 8 - Exposure Controls / Personal Protection * * *

**A: Component Exposure Limits**

Consult local authorities for acceptable exposure limits.

**Calcium carbonate (1317-65-3)**

| | |
|---|---|
| OSHA: | 15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction) |
| NIOSH: | 10 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable dust) |
| Alberta: | 10 mg/m3 TWA |
| British Columbia: | 10 mg/m3 TWA (total dust); 3 mg/m3 TWA (respirable fraction)<br>20 mg/m3 STEL |
| New Brunswick: | </row> 10 mg/m3 TWA (particulate matter containing no asbestos and < 1% crystalline silica) |
| NW Territories: | 5 mg/m3 TWA (respirable mass); 10 mg/m3 TWA (total mass) |
| Nunavut: | 5 mg/m3 TWA (respirable mass); 10 mg/m3 TWA (total mass) |
| Quebec: | 10 mg/m3 TWAEV (Limestone, total dust, containing no asbestos and less than 1% crystalline silica) |
| Saskatchewan: | 10 mg/m3 TWA<br>20 mg/m3 STEL |
| Yukon: | 30 mppcf TWA; 10 mg/m3 TWA<br>20 mg/m3 STEL |

**Zinc oxide (1314-13-2)**

| | |
|---|---|
| ACGIH: | 2 mg/m3 TWA (respirable fraction)<br>10 mg/m3 STEL (respirable fraction) |
| OSHA: | 5 mg/m3 TWA (fume); 10 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction)<br>10 mg/m3 STEL (fume) |
| NIOSH: | 5 mg/m3 TWA (dust and fume)<br>10 mg/m3 STEL (fume)<br>15 mg/m3 Ceiling (dust) |
| Alberta: | 2 mg/m3 TWA (respirable)<br>10 mg/m3 STEL (respirable) |
| British Columbia: | 2 mg/m3 TWA (respirable)<br>10 mg/m3 STEL (respirable) |
| Manitoba: | 2 mg/m3 TWA (respirable fraction)<br>10 mg/m3 STEL (respirable fraction) |
| New Brunswick: | 5 mg/m3 TWA (fume); </row> 10 mg/m3 TWA (particulate matter containing no asbestos and < 1% crystalline silica, dust)<br>10 mg/m3 STEL (fume) |
| NW Territories: | 5 mg/m3 TWA (fume); 5 mg/m3 TWA (dust, respirable mass); 10 mg/m3 TWA (dust, total mass)<br>10 mg/m3 STEL (fume) |
| Nova Scotia: | 2 mg/m3 TWA (respirable fraction)<br>10 mg/m3 STEL (respirable fraction) |
| Nunavut: | 5 mg/m3 TWA (fume); 5 mg/m3 TWA (dust, respirable mass); 10 mg/m3 TWA (dust, total mass)<br>10 mg/m3 STEL (fume) |
| Ontario: | 2 mg/m3 TWAEV (respirable)<br>10 mg/m3 STEV (respirable) |
| Quebec: | 5 mg/m3 TWAEV (fume); 10 mg/m3 TWAEV (total dust, containing no asbestos and less than 1% crystalline silica)<br>10 mg/m3 STEV (fume) |
| Saskatchewan: | 2 mg/m3 TWA (dust and fume, respirable fraction)<br>10 mg/m3 STEL (dust and fume, respirable fraction) |
| Yukon: | 5 mg/m3 TWA (fume); 30 mppcf TWA (dust); 10 mg/m3 TWA (dust)<br>10 mg/m3 STEL (fume); 20 mg/m3 STEL (dust) |

**Oil mist, mineral (8012-95-1)**

| | |
|---|---|
| ACGIH: | 5 mg/m3 TWA (excluding metal working fluids, highly & severely refined, inhalable fraction) |
| OSHA: | 5 mg/m3 TWA |
| NIOSH: | 5 mg/m3 TWA |
| | 10 mg/m3 STEL |
| Alberta: | 5 mg/m3 TWA |
| | 10 mg/m3 STEL |
| British Columbia: | 0.2 mg/m3 TWA (mildly refined); 1 mg/m3 TWA (severely refined) |
| Manitoba: | 5 mg/m3 TWA (excluding metal working fluids, highly & severely refined, inhalable fraction) |
| New Brunswick: | 5 mg/m3 TWA (as sampled by a method that does not collect vapor) |
| | 10 mg/m3 STEL |
| NW Territories: | 5 mg/m3 TWA |
| | 10 mg/m3 STEL |
| Nova Scotia: | 5 mg/m3 TWA (excluding metal working fluids, highly & severely refined, inhalable fraction) |
| Nunavut: | 5 mg/m3 TWA |
| | 10 mg/m3 STEL |
| Ontario: | 5 mg/m3 TWAEV |
| | 10 mg/m3 STEV (mist) |
| Quebec: | 5 mg/m3 TWAEV (mist) |
| | 10 mg/m3 STEV (mist) |
| Saskatchewan: | 5 mg/m3 TWA |
| | 10 mg/m3 STEL |
| Yukon: | 5 mg/m3 TWA |
| | 10 mg/m3 STEL |

**Engineering Controls**

Ventilation should effectively remove and prevent buildup of any dust generated from the handling of this product. Use explosion-proof equipment if high dust/air concentrations are possible.

**PERSONAL PROTECTIVE EQUIPMENT**

**Personal Protective Equipment: Eyes/Face**

Wear safety glasses with side shields.

**Personal Protective Equipment: Skin**

Use impervious gloves.

**Personal Protective Equipment: Respiratory**

If ventilation is not sufficient to effectively prevent buildup of dust, appropriate NIOSH/MSHA respiratory protection must be provided.

**Personal Protective Equipment: General**

Eye wash fountain and emergency showers are recommended.

## * * * Section 9 - Physical & Chemical Properties * * *

| | | | |
|---|---|---|---|
| **Appearance:** | Fine free-flowing powder | **Odor:** | Not Available |
| **Physical State:** | Solid | **pH:** | Not Available |
| **Vapor Pressure:** | Not Available | **Vapor Density:** | Not Available |
| **Boiling Point:** | Not Available | **Melting Point:** | Not Available |
| **Solubility (H2O):** | Not Available | **Specific Gravity:** | Not Available |
| **Flash Point:** | Not Available | **Flash Point Method:** | Not Available |
| **OSHA Flammability Classification:** | Not Available | | |

## * * * Section 10 - Chemical Stability & Reactivity Information * * *

**Chemical Stability**

Stable under normal conditions.

**Chemical Stability: Conditions to Avoid**

Avoid dispersion of dust in air.

**Incompatibility**

None identified.

**Hazardous Decomposition**

Hazardous combustion products may include carbon monoxide, carbon dioxide and hydrocarbon fragments.

**Possibility of Hazardous Reactions**

Will not occur.

## * * * Section 11 - Toxicological Information * * *

**Acute Dose Effects**

**A: General Product Information**

Contact with this material can cause irritation to the skin, eyes and mucous membranes.

Chronic ingestion of soluble copper salts has caused hemolytic anemia, hemochromatosis, and hepatorenal damage in animals.

**B: Component Analysis - LD50/LC50**

**Ferrous sulfate (7720-78-7)**
Oral LD50 Rat 237 mg/kg

**Manganese oxide (MnO) (1344-43-0)**
Oral LD50 Mouse 1000 mg/kg

**Zinc oxide (1314-13-2)**
Oral LD50 Rat >5000 mg/kg

**Cupric sulfate (7758-98-7)**
Oral LD50 Rat 300 mg/kg; Dermal LD50 Rabbit 1000 mg/kg

**Oil mist, mineral (8012-95-1)**
Oral LD50 Mouse 22 g/kg

**Carcinogenicity**

**A: General Product Information**

No information available for the product.

**B: Component Carcinogenicity**

**Oil mist, mineral (8012-95-1)**

ACGIH: A4 - Not Classifiable as a Human Carcinogen (highly & severely refined); A2 - Suspected Human Carcinogen (poorly & mildly refined)

## * * * Section 12 - Ecological Information * * *

**Ecotoxicity**

**A: General Product Information**

Product contains a component which is very toxic to aquatic life.

**B: Component Analysis - Ecotoxicity - Aquatic Toxicity**

**Ferrous sulfate (7720-78-7)**

| Test & Species | | Conditions |
|---|---|---|
| 96 Hr LC50 Poecilia reticulata | 925 mg/L | Static |
| 96 Hr LC50 Cyprinus carpio | 0.56 mg/L | Semi-static |
| 48 Hr EC50 Daphnia magna | 152 mg/L | |
| 48 Hr EC50 Daphnia magna | 6.15 - 9.26 mg/L | Static |

**Cupric sulfate (7758-98-7)**

| Test & Species | | Conditions |
|---|---|---|
| 96 Hr LC50 Oncorhynchus mykiss | 0.1 mg/L | |
| 48 Hr EC50 Daphnia magna | 0.0058 - 0.0073 mg/L | Static |

## *** Section 13 - Disposal Considerations ***

**US EPA Waste Number & Descriptions**

**A: General Product Information**

Material, if discarded, is not expected to be a characteristic hazardous waste under RCRA.

**B: Component Waste Numbers**

No EPA Waste Numbers are applicable for this product's components.

**Disposal Instructions**

Do not allow this material to drain into sewers/water supplies. Dispose of waste material according to Local, State, Federal, and Provincial Environmental Regulations.

See Section 7 for Handling Procedures. See Section 8 for Personal Protective Equipment recommendations.

## *** Section 14 - Transportation Information ***

**US DOT Information**

**Shipping Name:** Environmentally hazardous substances, solid, n.o.s. ( Cupric sulfate )
**UN/NA #:** UN3077 **Hazard Class:** 9 **Packing Group:** III
**Required Label(s):** CLASS 9

**TDG Information**

**Shipping Name:** Environmentally hazardous substances, solid, n.o.s. ( Cupric sulfate )
**UN/NA #:** UN3077 **Hazard Class:** 9 **Packing Group:** III
**Required Label(s):** CLASS 9

**IATA Information**

**Shipping Name:** Environmentally hazardous substances, solid, n.o.s. ( Cupric sulfate )
**UN #:** UN3077 **Hazard Class:** 9 **Packing Group:** III
**Required Label(s):** CLASS 9

**IMDG Information**

**Shipping Name:** Environmentally hazardous substances, solid, n.o.s. ( Cupric sulfate )
**UN #:** UN3077 **Hazard Class:** 9 **Packing Group:** III
**Required Label(s):** CLASS 9

## *** Section 15 - Regulatory Information ***

**US Federal Regulations**

**A: General Product Information**

This product is exempted from the TSCA inventory (Food and Drug Administration exemption).

**B: Component Analysis**

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

**Ferrous sulfate (7720-78-7)**

CERCLA: 1000 lb final RQ; 454 kg final RQ

**Cupric sulfate (7758-98-7)**

CERCLA: 10 lb final RQ; 4.54 kg final RQ

**C: Component Marine Pollutants**

This material contains one or more of the following chemicals required by US DOT to be identified as marine pollutants.

| Component | CAS # | |
|---|---|---|
| Cupric sulfate | 7758-98-7 | DOT regulated severe marine pollutant (anhydrous, hydrates) |

**Acute Health:** Yes **Chronic Health:** No **Fire:** No **Pressure:** No **Reactive:** No

**State Regulations**

**A: General Product Information**

Other state regulations may apply. Check individual state requirements.

**B: Component Analysis - State**

The following components appear on one or more of the following state hazardous substances lists:

| Component | CAS | CA | MA | MN | NJ | PA | RI |
|---|---|---|---|---|---|---|---|
| Ferrous sulfate | 7720-78-7 | Yes | Yes | No | Yes | Yes | No |
| Calcium carbonate | 1317-65-3 | No | Yes | Yes | Yes | Yes | Yes |
| Zinc oxide | 1314-13-2 | Yes | Yes | Yes | Yes | Yes | Yes |
| Cupric sulfate | 7758-98-7 | Yes | Yes | No | Yes | Yes | No |
| Oil mist, mineral | 8012-95-1 | Yes | Yes | Yes | Yes | Yes | Yes |

**Component Analysis - WHMIS IDL**

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

| Component | CAS # | Minimum Concentration |
|---|---|---|
| Ferrous sulfate | 7720-78-7 | 1 % |
| Zinc oxide | 1314-13-2 | 1 % |
| Cupric sulfate | 7758-98-7 | 1 % |
| Oil mist, mineral | 8012-95-1 | 1 % |

**Additional Regulatory Information**

**A: General Product Information**

No additional information available.

**B: Component Analysis - Inventory**

| Component | CAS # | TSCA | CAN | EEC |
|---|---|---|---|---|
| Ferrous sulfate | 7720-78-7 | Yes | DSL | EINECS |
| Manganese oxide (MnO) | 1344-43-0 | Yes | DSL | EINECS |
| Calcium carbonate | 1317-65-3 | Yes | NDSL | EINECS |
| Zinc oxide | 1314-13-2 | Yes | DSL | EINECS |
| Cupric sulfate | 7758-98-7 | Yes | DSL | EINECS |
| Oil mist, mineral | 8012-95-1 | Yes | DSL | EINECS |

## * * * Section 16 - Other Information * * *

**Other Information**

The information herein is presented in good faith and believed to be accurate as of the effective date given. However, no warranty, expressed or implied, is given. It is the buyer's responsibility to ensure that its activities comply with Federal, State or provincial, and local laws.

**Key/Legend**

ACGIH = American Conference of Governmental Industrial Hygienists. CERCLA = Comprehensive Environmental Response, Compensation and Liability Act. CFR = Code of Federal Regulations. DSL = Canadian Domestic Substance List. DOT= Department of Transportation. EINECS = European Inventory of New and Existing Chemical Substances. EPA = Environmental Protection Agency. HEPA = High Efficiency Particulate Air. HMIS = Hazardous Material Identification System. IARC = International Agency for Research on Cancer. IATA= International Air Transport Association. IMDG= International Maritime Dangerous Good. IOEL= Roche/ DSM developed Internal Occupational Exposure Limits. NFPA = National Fire Protection Association. NIOSH = National Institute of Occupational Safety and Health. NJTSR = New Jersey Trade Secret Registry. NTP = National Toxicology Program. OSHA = Occupational Safety and Health Administration. NA = Not available or Not Applicable. SARA = Superfund Amendments and Reauthorization Act. TLV = Threshold Limit Value. TSCA = Toxic Substance Control Act. WHMIS = Workplace Hazardous Materials Information System.

End of Sheet NP17158

# HICKMAN LAYER PREMIX 1# EXTRA VIT D3

(FOR USE IN THE FURTHER MANUFACTURE OF POULTRY FEED)

**Guaranteed Analysis**

| | | | |
|---|---|---|---|
| CRUDE PROTEIN | Not Less Than | 1.5 | % |
| CRUDE FIBER | Not More Than | 21 | % |
| CALCIUM (Ca) | Not Less Than | 9.5 | % |
| CALCIUM (Ca) | Not More Than | 11.3 | % |
| IRON (Fe) | Not Less Than | 126.0 | PPM |
| VITAMIN A | Not Less Than | 6,999,999 | IU'S/LB |
| VITAMIN D3 | Not Less Than | 5,999,999 | IU'S/LB |
| VITAMIN E | Not Less Than | 11,999 | IU'S/LB |
| RIBOFLAVIN | Not Less Than | 4,000 | MG/LB |
| NIACIN | Not Less Than | 25,000 | MG/LB |

**Ingredients**

GROUND RICE HULLS (NOT MORE THAN 40%), VITAMIN D3 SUPPLEMENT, CALCIUM CARBONATE, PHYTASE, NIACIN, VITAMIN E SUPPLEMENT, VITAMIN A SUPPLEMENT, D-CALCIUM PANTOTHENATE, RIBOFLAVIN SUPPLEMENT, MENADIONE SODIUM BISULFITE COMPLEX, PYRIDOXINE HYDROCHLORIDE, THIAMINE MONONITRATE, VITAMIN B12 SUPPLEMENT, FOLIC ACID.

Manufactured By:
TPi
2140 Industrial Ave.
Madera, CA. 93637

**Net Weight 50 LB (22.68 KG)**

BEST IF USED BY:
9/28/2010

# SAFETY DATA SHEET

(According to 91/155/EEC)

ADM Safety Data Sheet
Date / Revised: January 02, 2007
Product: L-lysine Monohydrochloride HCl 98.5% Feed Grade

## 1. Substance/preparation and company name

**L-LYSINE MONOHYDROCHLORIDE HCl 98.5% FEED GRADE**

Description of Product: tan colored granules

Company:

U.S.A. Agent/Agent U.S.A
ADM Specialty Feed Ingredients
4666 Faries Parkway
P.O. Box 1470
Decatur, Illinois 62525 USA
TEL: 1-217-424-5200

European Union Agent
ADM Specialty Feed Ingredients
Stationstraat 76
1541 LJ Koog a/d Zaan
The Netherlands
TEL: 31756464856

Emergency information:
TEL: 1-217-451-8177

## 2. Composition/information on ingredients

Chemical nature: $C_6H_{14}N_2O_2$-HCl

Preparation contains: L-lysine hydrochloride

EINECS No. 211-519-9
CAS-No.: 657-27-2
Symbols: L-Lys-HCl
IFN: 5-19-118
Hazardous Ingredients: N/A

## 3. Possible hazards

Not DOT regulated
Not EPA regulated
No extraordinary risks for humans and environment

## 4. First aid measures

General recommendation: avoid contact

After inhalation: remove individual to fresh air

After skin contact: wash area thoroughly with soap and water

After eye contact: wash eye with water for 15 minutes

After swallowing: drink large amounts of water

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## 5. Fire fighting measures

Suitable extinguishing media: water, carbon dioxide, dry chemical

Special protective equipment: in case of fire, wear self-contained breathing apparatus

Further information: may form HCl, $NO_x$ fumes when burned

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## 6. Accidental release measures

Personal precautions: Class P1 particle filter recommended

Methods for cleaning up: wash area with water, avoid high pressure rinsing. Material is biodegradable--avoid washing into drainage ditches

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## 7. Handling and storage

Handling: rubber gloves and protective eyewear recommended

Storage: store in cool, dry place

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## 8. Exposure controls and personal protection

Additional information for design of technical equipment: N/A

Components with maximum tolerance levels for workplaces: N/A

Personal protection equipment:

Protection from inhalation: dust mask - optional
Hand protection: rubber gloves
Eye protection: goggles
Body protection: N/A
General protection and hygienic measures:

## 9. Physical and chemical properties

Form: solid, granule
Color: tan
Smell: fermentation
Melting point: 260°C (dec)
Explosion limits: N/A Lower: N/A Upper: N/A
Ignition temperature: N/A
Vapor pressure: N/A
Density: 38-42 lb/cu. ft. (.61-.67 g/cm$^3$)
Solubility in water: freely soluble
Viscosity: N/A
pH: Neutral (10 g/l $H_2O$)

## 10. Stability and reactivity

Conditions to avoid: heating to decomposition

Substances to avoid: strong oxidizers

Hazardous reactions: none

Hazardous decomposition products: none

## 11. Toxicology

Acute toxicity

$LD_{50}$ oral rat: 10,000 mg/kg

$LD_{50}$ ipr rat: 4,019 mg/kg

Sensitization

Not a skin sensitizer

## 12. Ecology

Elimination information:

Behavior and environmental fate: biodegradeable

Ecotoxic effects: none

Further ecological information: biodegradable, not highly toxic to fish

## 13. Advice for disposal

Contained material may be transported to an approved landfill, incinerated, or aerobically digested

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## 14. Transportation guidelines

Not considered to be hazardous

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## 15. Regulatory information

Complies with applicable European Union, Canadian, United States, FDA and Japanese regulations governing animal feed ingredients

# Tylan Premix

Effective Date: 18-Nov-2003

**Elanco Animal Health**
**Material Safety Data Sheet**

## Section 1 - Chemical Product and Company

**Manufacturer:**
Elanco Animal Health
Division of Eli Lilly and Company
2001 West Main St
PO Box 708
Greenfield, IN 46140

**Manufacturer's Emergency Phone:**
1-800-428-4441
**CHEMTREC:**
1-800-424-9300 (North America)
1-703-527-3887 (International)

**Common Name:** Tylan Premix

**Chemical Name:** Tylosin, phosphate (salt)
**Synonym(s):** 033840 Formulation; Tylosin Premix; Tylosin Phosphate Premix
**Trademarks(s):** Tylan 10 Premix; Tylan 20 Premix; Tylan 40 Premix; Tylan 50 Premix; Tylan 80 Premix; Tylan 100 Premix; Tylan
**Lilly Item Code(s):** AF0010; AF0020; AF0024; AF0026; AF0040; AF0042; AF0050; AF0055; AF0080; AF0090; AF0091; AF0099; AF0105; AH0042; MS8272; MS8274; MS8275; UC5318

See attached glossary for abbreviations.

## Section 2 - Composition / Information on Ingredients

| Ingredient | CAS | Concentration % |
|---|---|---|
| Tylosin Phosphate | 1405-53-4 | 1.7 - 24 |
| Excipients | NA | 75 - 95 |
| Anti-dusting Oil | NAIF | 1 - 2 |

Excipients may include rice hulls, soybean mill run, soybean feed, starch, or limestone.

Contains no hazardous components (one percent or greater) or carcinogens (one-tenth percent or greater) not listed above.

**Exposure Guidelines:** Tylosin phosphate - LEG <100 micrograms/m3 TWA for 12 hours.

Grain dust - PEL 10 mg/m3 TWA. TLV 4 mg/m3 TWA for 8 or 12 hours (total). Lilly preferred exposure limit is TLV.

UK - Maximum Exposure Limit 10 mg/m3 TWA (total) (Sens).
Ireland - Occupational Exposure Limit 10 mg/m3 TWA (Sens).

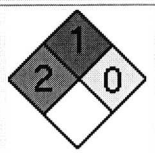
Limestone dust - PEL 5 mg/m3 TWA (respirable) and 15 mg/m3 TWA (total). TLV 10 mg/m3 TWA.
UK - Exposure Standard 4 mg/m3 TWA (respirable) and 10 mg/m3 TWA (total).
Ireland - Occupational Exposure Limit 4 mg/m3 TWA (respirable) and 10 mg/m3 TWA (total).
France - Occupational Exposure Limit 10 mg/m3 (VME) TWA.

The anti-dusting oil reduces potential exposure under normal conditions of use.

## Section 3 - Hazards Identification

**Appearance:** Light tan granular meal
**Physical State:** Solid
**Odor:** Musty

### Emergency Overview




Special
A = Allergen

**Emergency Overview Effective Date:** 27-Nov-2001

**Lilly Laboratory Labeling Codes:**
**Health** 2 **Fire** 1 **Reactivity** 0 **Special** A

**Primary Physical and Health Hazards:** Irritant (eyes). Severe Allergen.

**Caution Statement:** Tylan Premix contains tylosin phosphate, may be irritating to the eyes, and is classified as a severe allergen because repeated unprotected exposures are likely to cause allergic reactions.

**Routes of Entry:** Inhalation and skin contact.

**Effects of Overexposure:** Allergic reactions to tylosin in a manufacturing setting have been reported. Allergy symptoms may include skin rash, watery eyes, shortness of breath, nasal congestion, coughing, and wheezing. Based on animal data, may be irritating to the eyes. Prolonged exposure to high concentrations of grain dust or limestone dust may cause irritation of the respiratory tract and mucous membranes.

**Medical Conditions Aggravated by Exposure:** Hypersensitivity to tylosin.

**Carcinogenicity:** Tylosin base - Not listed by IARC, NTP, ACGIH, or OSHA. Not considered carcinogenic in animal studies conducted by Lilly Research Laboratories.

## Section 4 - First Aid Measures

**Eyes:** Hold eyelids open and flush with a steady, gentle stream of water for 15 minutes. See an ophthalmologist (eye doctor) or other physician immediately.

**Skin:** Remove contaminated clothing and clean before reuse. Wash all exposed areas of skin with plenty of soap and water. Get medical attention if irritation develops.

**Inhalation:** Move individual to fresh air. Get medical attention if breathing difficulty occurs. If not breathing, provide artificial respiration assistance (mouth-to-mouth) and call a physician immediately.

**Ingestion:** Do not induce vomiting. Call a physician or poison control center. If available, administer activated charcoal (6-8 heaping teaspoons) with two to three glasses of water. Do not give anything by mouth to an unconscious person. Immediately transport to a medical care facility and see a physician.

## Section 5 - Fire Fighting Measures

**Flash Point:** Not applicable
**UEL:** No applicable information found
**LEL:** No applicable information found

**Extinguishing Media:** Use water, carbon dioxide, dry chemical, foam, or Halon.

**Unusual Fire and Explosion Hazards:** As a finely divided material, may form dust mixtures in air which could explode if subjected to an ignition source.

**Hazardous Combustion Products:** May emit toxic fumes when exposed to heat or fire.

## Section 6 - Accidental Release Measures

**Spills:** Wear protective equipment, including eye protection, to avoid exposure (see Section 8 for specific handling precautions). Large spills due to traffic accidents, etc., should be reported immediately to CHEMTREC and Elanco Animal Health for assistance. Prevent spilled material from flowing onto adjacent land or into streams, ponds, or lakes. Vacuum material with appropriate dust collection filter in place. Be aware of potential for dust explosion when using electrical equipment. If vacuum is not available, lightly mist material and remove by sweeping or wet wiping.

## Section 7 - Handling and Storage

**Storage Conditions:** Store in a cool, dry place. Protect from moisture and heat. Product should not be used after the date printed on the container.

## Section 8 - Exposure Controls / Personal Protection

See Section 2 for Exposure Guideline information.

When mixing and handling, use protective clothing, impervious gloves, and dust respirator. Operators should wash thoroughly with soap and water after handling. If accidental eye contact occurs, immediately rinse with plenty of water.

**Respiratory Protection:** Use an approved respirator.

**Eye Protection:** Chemical goggles and/or face shield.

**Ventilation:** Laboratory fume hood or local exhaust ventilation.

**Other Protective Equipment:** In a manufacturing setting, wear chemical-resistant gloves and body covering to minimize skin contact. If handled in a ventilated enclosure, as in a laboratory setting, respirator and goggles or face shield may not be required. Safety glasses are always required.

**Additional Exposure Precautions:** In production settings, airline-supplied, hood-type respirators are preferred. Shower and change clothing if skin contact occurs.

Under normal use and handling conditions, wear goggles to protect eyes and wear impermeable gloves and protective equipment to avoid direct contact with skin. Wash thoroughly with soap and water after handling.

## Section 9 - Physical and Chemical Properties

**Appearance:** Light tan granular meal
**Odor:** Musty
**Boiling Point:** Not applicable
**Melting Point:** Not applicable
**Specific Gravity:** Not applicable
**pH:** No applicable information found
**Evaporation Rate:** No applicable information found
**Water Solubility:** Insoluble
**Vapor Density:** No applicable information found
**Vapor Pressure:** No applicable information found

## Section 10 - Stability and Reactivity

**Stability:** Stable at normal temperatures and pressures.

**Incompatibility:** May react with strong oxidizing agents (e.g., peroxides, permanganates, nitric acid, etc.).

**Hazardous Decomposition:** May emit toxic fumes when heated to decomposition.

**Hazardous Polymerization:** Will not occur.

## Section 11 - Toxicological Information

## Acute Exposure

No data available for mixture or formulation. Data for ingredient(s) or related material(s) are presented.

**Oral:** 22% Tylosin phosphate mixture - Rat, 500 mg/kg, no deaths or toxicity.

**Skin:** 22% Tylosin phosphate mixture - Rabbit, 2000 mg/kg, no deaths or toxicity.

**Inhalation:** Tylosin base - Rat, 2060 mg/m3 for 1 hour, no deaths or toxicity.

**Skin Contact:** 22% Tylosin phosphate mixture - Rabbit, nonirritant

**Eye Contact:** 22% Tylosin phosphate mixture - Rabbit, irritant

## Chronic Exposure

No data available for mixture or formulation. Data for ingredient(s) or related material(s) are presented.

**Target Organ Effects:** Tylosin base - No effects identified in animal studies.

**Other Effects:** Tylosin base - Salivation, diarrhea, and vomiting after repeated large oral doses.

**Reproduction:** Tylosin base - No effects identified in animal studies.

**Sensitization:** Tylosin base - Guinea pig, positive contact sensitizer.

**Mutagenicity:** Tylosin base - Mutagenic in one mammalian test system. Not mutagenic in bacterial cell tests and other mammalian cell tests. Unlikely to pose a genotoxic risk to man.

# Section 12 - Ecological Information

No environmental data for the mixture or formulation. The environmental information for ingredient(s) or related material(s) are presented.

**Ecotoxicity Data:** Tylosin base
Rainbow trout 96-hour median lethal concentration: > 300 mg/L
Bluegill 96-hour median lethal concentration: > 300 mg/L
Daphnia magna 48-hour median effective concentration: > 300 mg/L
Bobwhite 14-day oral median lethal concentration: > 2000 mg/kg
Bobwhite 5-day dietary median lethal concentration: > 5000 ppm
Mallard 5-day dietary median lethal concentration: > 5000 ppm
Earthworm 14-day median lethal concentration: > 102.6 mg/kg
Green algae (P. subcapitata) 72-hour median effective concentration (growth): 0.22 mg/L
Seedling median effective concentration (growth): 43 mg/kg (tomato); 53 mg/kg (soybean); 140 mg/kg (oat)

**Environmental Fate:** Tylosin base
Water Solubility (g/L): 5
Kow (pH 5, 7, 9): 5, 17, 17
Koc: 200 (sandy loom, pH 4.6); 1652 (silt loom, pH 5.7); 2233 (sandy loom; pH 7.6)

UV-visible light absorption (nm): 282
Soil degradation half-life (100 ppm): 62 days (tylosin factor A); 37 days (tylosin factor D)
Soil degradation half-life (1 mg/kg; 4 soils): 50.3 to 105 days
Leaching in soil column: none

**Environmental Summary:** Tylosin base - Practically nontoxic to fish, birds, earthworms, and aquatic invertebrates. Highly toxic to algae. No volatility expected. Not expected to bioconcentrate in aquatic organisms. Low mobility in soil. Not persistent in the environment due to degradation and possible photolysis.

**Lilly Aquatic Exposure Guideline (LAEG):** Tylosin base
LAEG for Drinking Water: 36 micrograms/L
LAEG for Chronic Exposure of Aquatic Organisms: 99 micrograms/L
LAEG for Acute Exposure of Aquatic Organisms: 220 micrograms/L

## Section 13 - Disposal Considerations

**Waste Disposal:** Dispose of any cleanup materials and waste residue according to all applicable laws and regulations.

**Container Disposal:** Packages may be burned or buried in accordance with environmental standards.

## Section 14 - Transport Information

**Regulatory Organizations:**

**DOT:** Not Regulated

**ICAO/IATA:** Not Regulated

**IMO:** Not Regulated

## Section 15 - Regulatory Information

Below is selected regulatory information chosen primarily for possible Elanco Animal Health usage. This section is not a complete analysis or reference to all applicable regulatory information. Please consider all applicable laws and regulations for your country/state.

# U.S. Regulations

Tylosin phosphate
TSCA - No
CERCLA - Not on this list.
SARA 302 - Not on this list.
SARA 313 - Not on this list.
OSHA Substance Specific - No

# EU Regulations

**EC Classification**
Contains tylosin phosphate (C = 17 to 24%)
Xn (Harmful)
Xi (Irritant)

**Risk Phrases**
R 36 - Irritating to eyes.
R 42/43 - May cause sensitization by inhalation and skin contact.

**Safety Phrases**
S 26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S 36/37/39 - Wear suitable protective clothing, gloves and eye/face protection.

## Section 16 - Other Information

**MSDS Sections Revised:** Sections 1 and 16.

As of the date of issuance, we are providing available information relevant to the handling of this material in the workplace. All information contained herein is offered with the good faith belief that it is accurate. THIS MATERIAL SAFETY DATA SHEET SHALL NOT BE DEEMED TO CREATE ANY WARRANTY OF ANY KIND (INCLUDING WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE). In the event of an adverse incident associated with this material, this safety data sheet is not intended to be a substitute for consultation with appropriately trained personnel. Nor is this safety data sheet intended to be a substitute for product literature which may accompany the finished product.

For additional information contact:
ELANCO Animal Health
1-800-428-4441
1-317-276-2000

**GLOSSARY:**

ACGIH = American Conference of Governmental Industrial Hygienists
AIHA = American Industrial Hygiene Association
BEI = Biological Exposure Index
CAS Number = Chemical Abstract Service Registry Number
CERCLA = Comprehensive Environmental Response Compensation and Liability Act (of 1980)
CHAN = Chemical Hazard Alert Notice
CHEMTREC = Chemical Transportation Emergency Center
DOT = Department of Transportation
EC = European Community
EINECS = European Inventory of Existing Chemical Substances
ELINCS = European List of New Chemical Substances
EPA = Environmental Protection Agency
HEPA = High Efficiency Particulate Air (Filter)
IARC = International Agency for Research on Cancer

ICAO/IATA = International Civil Aviation Organization/International Air Transport Association
IEG = Lilly Interim Exposure Guideline
IMO = International Maritime Organization
Kow = Octanol/Water Partition Coefficient
LEG = Lilly Exposure Guideline
LEL = Lower Explosive Limit
MSDS = Material Safety Data Sheet
MSHA = Mine Safety and Health Administration
NA = Not Applicable, except in Section 14 where NA = North America
NADA = New Animal Drug Application
NAIF = No Applicable Information Found
NCI = National Cancer Institute
NIOSH = National Institute for Occupational Safety and Health
NOS = Not Otherwise Specified
NTP = National Toxicology Program
OSHA = Occupational Safety and Health Administration
PEL = Permissible Exposure Limit (OSHA)
RCRA = Resource Conservation and Recovery Act
RQ = Reportable Quantity
RTECS = Registry of Toxic Effects of Chemical Substances
SARA = Superfund Amendments and Reauthorization Act
STEG = Lilly Short Term Exposure Guideline
STEL = Short Term Exposure Limit
TLV = Threshold Limit Value (ACGIH)
TPQ = Threshold Planning Quantity
TSCA = Toxic Substances Control Act
TWA = Time Weighted Average/8 Hours Unless Otherwise Noted
UEL = Upper Explosive Limit
UN = United Nations
WEEL = Workplace Environmental Exposure Level (AIHA)

BALCHEM
ANIMAL NUTRITION & HEALTH

World-Class Quality Worldwide Service

Revised: 19 May 2008
Supersedes: 7 May 2008

# MATERIAL SAFETY DATA SHEET

## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME:
50% Choline Chloride – Dry
60% Choline Chloride – Dry
70% Choline Chloride – Dry
75% Choline Chloride – Dry
70% Choline Chloride – Aqueous
75% Choline Chloride – Aqueous

SYNONYMS:
Choline Chloride
2-Hydroxy-N,N,N-trimethylethanaminium chloride
(beta-Hydroxyethyl) trimethylammonium chloride
(2-Hydroxyethyl) trimethylammonium chloride
Bilineurin Chloride
Biocolina
Biocoline
Cholinium Chloride
Hepacholine
Hormocline
Lipotril
Luridin Chloride
Neocolina
Paresan
Trimethyl (2-hydroxyethyl) ammonium chloride
Chlorure de Choline
Cholinchlorid

TYPICAL USES:
Nutritional Additive

MANUFACTURER:
Balchem Corporation
52 Sunrise Park Road
P.O. Box 600
New Hampton, NY 10958
(845) 326-5600 [USA]

## 2. COMPOSITION/INFORMATION ON INGREDIENTS

| COMPONENTS | WEIGHT % | CAS # | EXPOSURE LIMITS | CITATION |
|---|---|---|---|---|
| **Dry** | | | | |
| $C_5H_{14}ClNO$ | 50-75 | 67-48-1 | OSHA Nuisance Dust PELs – Respirable fraction = 5 $mg/m^3$<br>- Total = 15 $mg/m^3$ | (29 CFR 1910.1000) |
| Carrier* | 25-50 | ---------- | OSHA Nuisance Dust PELs – Respirable fraction = 5 $mg/m^3$<br>- Total = 15 $mg/m^3$ | (29 CFR 1910.1000) |

*Cereal or Amorphous Silica carrier. $SiO_2 \cdot H_2O$ (CAS #63231-67-4) is a synthetic amorphous silica not to be confused with crystalline silica. Epidemiological studies indicate low potential for adverse health effects from amorphous silica.

| | | | | |
|---|---|---|---|---|
| **Aqueous** | | | | |
| $C_5H_{14}ClNO$ | 70-75 | 67-48-1 | None | None |
| $H_2O$ | 30-25 | ---------- | | |

| HAZARDOUS COMPONENTS | WEIGHT % | CAS # | EXPOSURE LIMITS |
|---|---|---|---|
| None | | | |

## 3. HAZARDS IDENTIFICATION

**Emergency Overview**

**Dry:** Tan to off-white granule or powder with odor ranging from little to cereal. Hazards include dust explosion and dust irritation hazards. Absorbs moisture (hygroscopic) and may be slippery when spilled.

**Aqueous:** Colorless to light amber solution; slight amine (fish-like) odor; poses little or no immediate hazards.

**Potential Health Effects**

**Eye:** No hazard expected from aqueous. Dust from Dry may cause eye irritation.

**Inhalation:** No hazard expected. Breathing dust may cause respiratory irritation.

**Skin:** No hazard expected. Dust may cause skin irritation.

**Ingestion:** Convulsions may occur with ingestion of 100% choline chloride. Effects reported in rats exposed to 200-670 mg/ml included an initial excitement period, characterized by jerking movements and occasional convulsions; bloody tears; a subsequent depression with complete relaxation and depressed respiration which terminated in respiratory paralysis. No hazard expected from swallowing dry or aqueous.

**Systemic:** No known physiological hazards.

**Medical Conditions Aggravated by Exposure:** None determined

**Exposure Symptoms:** Acute – None expected
Chronic – None determined

## 4. FIRST AID MEASURES

**Eye:** Flush with clean, low-pressure water for at least 15 minutes while occasionally lifting eyelids. If irritation occurs and persists, get medical attention.

**Inhalation:** No adverse effects anticipated by breathing small amounts during proper industrial handling. If there is difficulty breathing, remove to fresh air and get medical attention.

**Skin:** Wash with water, use soap if available. If extensive skin contact occurs, remove contaminated clothing and wash contacted skin with soap and water. In the unlikely event that irritation does occur/persist after contact, check with medical personnel. Wash contaminated clothing before reuse.

**Ingestion:** Seek medical attention.

**Note to Physician:** Medical attention should not be required. There are no adverse effects expected from exposure to this product. If medical attention is sought, treatment should be based on the judgement of the physician in response to the reactions of the patient.

## 5. FIRE FIGHTING MEASURES

**Flammable Properties:** Flash point – not applicable; Method – not applicable

**Flammable Limits:** Lower Flammable Limit (LFL) – not applicable
Upper Flammable Limit (UFL) – not applicable

**Auto Ignition Temperature:** Not available

**Hazardous Combustion Products:** No specific hazards. Combustion will produce compounds of carbon, hydrogen, nitrogen, oxygen and chlorine including carbon monoxide, carbon dioxide and hydrogen chloride. The exact composition of the products of combustion will depend on the conditions of combustion. Aqueous will not support combustion until all water is boiled off.

**Other Fire and Explosion Hazards:** Possible dust explosion

**Extinguishing Media:** Water, Foam, $CO_2$, Dry Chemical

**Fire Fighting Equipment:** Full protective equipment (Bunker Gear) and NIOSH/MSHA approved SCBA should be used for all indoor and any significant outdoor fires. For small outdoor fires which may easily be extinguished with a portable fire extinguisher, use of a SCBA may not be required.

**Fire Fighting Instructions:** Water run off can cause environmental damage. Dike and collect water used to fight fires.

## 6. ACCIDENTAL RELEASE MEASURES

If liquid, use absorbent (e.g. corn cob), vacuum or sweep material and place in a disposal container.

## 7. HANDLING AND STORAGE

**General Handling Precautions**
Avoid contact with eyes, skin and clothing. Wash thoroughly after handling. Avoid breathing dust. Minimize dust generation and minimize accumulation on floors to prevent slips. Ensure containers are properly secured before moving.

**Storage Information**
Storage temperature: Ambient recommended. No known minimum; keep containers closed and away from moisture.

**Shelf Life:** No known limit. Clumping may occur under humid conditions for Dry products. Discoloration may occur for Aqueous products. Use within 1 year recommended.

**Special Sensitivity:** None

**Miscellaneous:** Dry is hygroscopic (will absorb moisture from air).

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Engineering Controls**: Provide ventilation and particulate control to maintain airborne levels below the exposure guidelines.

**Eye Protection**: Use safety glasses. If there is a potential for exposure to particles which would cause mechanical injury to the eye, wear chemical goggles.

**Respiratory Protection**: For most conditions, no respiratory protection should be needed; however, in dusty atmospheres, use an approved dust respirator. In confined or poorly ventilated areas or emergency and other conditions where the exposure guidelines may be greatly exceeded, use an approved positive pressure self-contained breathing apparatus.

**Skin Protection**: As a general precaution, use gloves. No additional precautions other than clean body-covering clothing should be needed.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

| | Dry | Aqueous |
|---|---|---|
| **Appearance:** | Off-white to tan granule or powder | Clear to light amber liquid |
| **Physical state:** | Solid | Liquid |
| **Chemical Family:** | Aliphatic amines | Aliphatic amines |
| **Odor:** | Little to Cereal odor | Amine odor |
| **Molecular Formula:** | Mixture | $C_5H_{14}ClNO$ |
| **Molecular Weight:** | Mixture | Mixture |
| **Specific Gravity:** | 0.46 Dry | 1.1 |

| | | |
|---|---|---|
| **Bulk Density:** | 28-32 lbs/ft$^3$ | Not applicable |
| **Solubility:** | 50%-50% w/w Dry<br>60%-60% w/w Dry<br>70%-70% w/w Dry<br>75%-75% w/w Dry | Completely soluble in water |
| **Octanol/Water Partition Coefficient:** | Not available | Not available |
| **pH:** | Not available | 6.5-8.0 |
| **Melting Point:** | Not available | Not available |
| **Boiling Point:** | Not available | 70%-257°F (125°C) |
| **Evaporation Rate:** | Not available (assumed to be very low) | Not available (assumed to be very low) |
| **VOC Content:** | Not available (assumed to be essentially zero) | Not available (assumed to be essentially zero) |
| **Vapor Pressure:** | Not available (assumed to be very low) | 70%-15 mmHg @ 25°C. |
| **Vapor Density:** | Not available | Not available |

## 10. STABILITY AND REACTIVITY

**Chemical Stability:** Stable under normal conditions

**Material Incompatibility:** Dry may generate heat upon contact with moisture. Avoid contact with strong acids and bases.

**Hazardous Decomposition Products:** Compounds of carbon, hydrogen, nitrogen, oxygen, and chlorine.

**Hazardous Polymerization:** None

## 11. TOXICOLOGICAL INFORMATION (100% Choline Chloride)

$LD_{50}$ – 3400 mg/kg oral (rat)
$LD_{50}$ – 450 mg/kg intraperitoneal (rat)
$LD_{50}$ – 3900 mg/kg oral (mouse)
$LD_{50}$ – 320 mg/kg intraperitoneal (mouse)
$LD_{LO}$ – 735 mg/kg subcutaneous (mouse)
$LD_{50}$ – 53 mg/kg intravenous (mouse)
$LD_{LO}$ – 5 mg/kg intravenous (dog)
$LD_{LO}$ – 25 mg/kg intravenous (cat)
$LD_{LO}$ – 500 mg/kg intraperitoneal (rabbit)
$LD_{LO}$ – 1 g/kg subcutaneous (rabbit)

$LD_{LO}$ – 1100 μg/kg intravenous (rabbit)
$LD_{LO}$ – 1 g/kg rectal (rabbit)
$LD_{LO}$ – 1500 mg/kg (frog)
$TD_{LO}$ – 331 mg/kg/14 weeks continuous oral (rat)
$TD_{LO}$ – 4950 mg/kg/30 days intermittent intraperitoneal (rat)
$TD_{LO}$ – 6250 mg/kg/10 weeks intermittent intraperitoneal (rat)
$TD_{LO}$ – 3564 mg/kg/5 weeks intermittent intraperitoneal (rat)

## 12. ECOLOGICAL INFORMATION (100% Choline Chloride)

10,000 mg/L 24 weeks (mortality) Coho Salmon, Silver Salmon (oncorhynchus kisutch)

## 13. DISPOSAL CONSIDERATIONS

Not considered a hazardous waste under Federal Hazardous Waste Regulations (40 CFR 261). Product solutions should be treated in a wastewater treatment plant after securing treatment plant acceptance. Powder or absorbed solution should be landfilled after securing Environmental Regulatory Agency and landfill operations approval. Consult state and local regulations regarding proper disposal as they may be more restrictive or otherwise different from Federal regulations.

## 14. TRANSPORT INFORMATION

Not a D.O.T. Hazardous Material (49 CFR 172.101).

**Labeling**: Containers of this product need no special warning labels. Only a product identity label is needed.

## 15. REGULATORY INFORMATION

**U.S. Federal Regulations**

**OSHA:** This product is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.

**PSM:** This product is not subject to Process Safety Management (29 CFR 1910.119).

**FIFRA:** Not applicable

**TSCA:** On TSCA inventory

**CERCLA:** Reportable Quantity – None (40 CFR 302.4)

**SARA TITLE III:** Section 302 Extremely Hazardous Substances – None (40 CFR 355)
Section 311/312 Hazard Categories – None (40 CFR 370.2)
Section 313 Toxic Chemicals – None (40 CFR 372.65)

**RMP:** Not listed under the Risk Management Plan (40 CFR 68).

**RCRA:** If discarded in purchased form, this product is not a listed or characteristic hazardous waste. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal whether a material containing the product or derived from the product should be classified as a hazardous waste (40 CFR 261.20-24).

**CWA:** Release into a waterway may require reporting to the National Response Center @ 800-424-8802 (40 CFR 116.4).

**FDA/USDA:** Follow Good Manufacturing Practice (GMP)

**International Regulations**

**Canadian Domestic Substance List (DSL):** Listed

**European Inventory of Existing Commercial Chemical Substances (EINECS):** No. 200-655-4

**Australian Inventory of Chemical Substances (AICS):** Listed.

**Korean Existing Chemicals List (ECL):** No. KE-20909

**Japan ENCS:** 2-341X; 9-1994X

**State Regulations**

This product is not subject to California Proposition 65.

There are no known additional requirements necessary for compliance with state right-to-know regulations.

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## 16. OTHER INFORMATION

FDA: This product does not contain protein derived from mammalian tissues and is certified to be free of the agent that causes transmissible spongiform encenphalopathy (TSE) [21 CFR 589.2000].

Reason for Issue: Corrected address/contact info.

**Hazard Ratings** – The following hazard ratings are recommended for this product:

| NFPA | |
|---|---|
| Fire | - 1 for dry, 0 for aqueous |
| Health | - 0 |
| Reactivity | - 0 |
| Specific Hazard | - None |

Abbreviations – The following abbreviations may be used in this document:

% - percent
µg/kg - micrograms per kilogram
g/kg – grams per kilogram
$lbs/ft^3$ – pounds per cubic foot
mg/kg – milligrams per kilogram
$mg/m^3$ – milligrams per cubic meter
mmHg – millimeters of mercury
ppm – parts per million
w/w – Weight per weight
ACGIH – American Council of Governmental Industrial Hygienists
AICS – Australian Inventory of Chemical Substances
CAS – Chemical Abstract Service
CERCLA – Comprehensive Emergency Response, Compensation and Liability Act
CFR – Code of Federal Regulations
CWA – Clean Water Act
D.O.T. – Department of Transportation

DSL – Domestic Substance List (Canada)
ECL – Existing Chemicals List (Korea)
EINECS – European Inventory of Existing Commercial Substances
FDA – Food and Drug Administration
FIFRA – Federal Insecticide, Fungicide and Rodenticide Act
IDLH – Immediately Dangerous to Life and Health
$LD_{50}$ – Lethal dose for 50% mortality of subject species
$LD_{LO}$ – Lethal dose low; the lowest dose of a substance introduced by any route other than inhalation reported to have caused death in humans or animals.
LFL – Lower Flammable Limit
MSHA – Mine Safety Health Administration
NFPA – National Fire Protection Association
NIOSH – National Institute of Occupational Safety and Health
OSHA – Occupational Safety and Health Administration
PEL – Permissible Exposure Limit (default 8-hour day, 40-hour week TWA)
PSM – Process Safety Management
RCRA – Resource Conservation and Recovery Act
REL – Recommended Exposure Limit (default 10-hour day, 40-hour week TWA)
RMP – Risk Management Plan
SARA – Superfund Amendment and Reauthorization Act
STEL – Short Term Exposure Limit (default 15-minute TWA)
$TD_{LO}$ – Lowest dose to which humans or animals have been exposed and reported to produce a toxic effect other than cancer
TSCA – Toxic Substance Control Act
TWA – Time Weighted Average
UFL – Upper Flammable Limit
USDA – United States Department of Agriculture

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Prepared by: EH&S Department (417) 498-2241 [USA]

Diamond V

# MATERIAL SAFETY DATA SHEET

## SECTION I PRODUCT IDENTIFICATION

PRODUCT NAME:
**DIAMOND V XPC YEAST CULTURE**

CHEMICAL NAME YEAST CULTURE

MANUFACTURER

Diamond V Mills
436 G Avenue N.W.
P.O. Box 74570
Cedar Rapids, IA 52407

EMERGENCY TELEPHONE

(319) 366-0745
(800) 373-7234 (outside Iowa)

Date Prepared: 11/26/07

## SECTION II HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

IS THIS PRODUCT HAZARDOUS IN THIS CONCENTRATION UNDER 29 CFR PART 1910.1200? YES ☐ NO ☒

IF YES, CHECK HEALTH HAZARD

- ☐ CARCINOGEN
- ☐ SENSITIZER
- ☐ CORROSIVE
- ☐ TOXIC
- ☐ HIGHLY TOXIC
- ☐ TARGET ORGAN EFFECT
- ☐ IRRITANT

OR, CHECK PHYSICAL HAZARD

- ☐ COMBUSTIBLE LIQUID
- ☐ COMPRESSED GAS
- ☐ ORGANIC PEROXIDE
- ☐ PYROPHORIC
- ☐ UNSTABLE (REACTIVE) OR WATER-REACTIVE
- ☐ EXPLOSIVE
- ☐ FLAMMABLE
- ☐ OXIDIZER

| Hazardous Components (Specific Chemical Identity, Common Names(s) | OSHA PEL | ACGIH TLV | Other Limits Recommended | % Optional |
|---|---|---|---|---|
| N/A | | | | |

## SECTION III PHYSICAL/CHEMICAL CHARACTERISTICS

| | |
|---|---|
| BOILING POINT | N/A |
| VAPOR PRESSURE (mmg Hg) | N/A |
| VAPOR DENSITY (AIR = 1) | N/A |
| SOLUBILITY IN WATER | N/A |
| APPEARANCE AND ODOR | Typical - Tan granular powder |
| SPECIFIC GRAVITY ($H_2O$ = 1) | N/A |
| MELTING POINT | N/A |
| EVAPORATION RATE (Butyl Acetate = 1) | N/A |

## SECTION IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (METHOD USED) ..... N/A
FLAMMABLE LIMITS..... N/A
LEL..... N/A
UEL ..... N/A
EXTINGUISHING MEDIA ..... Water - Chemical - $CO_2$
SPECIAL FIRE FIGHTING PROCEDURES ..... N/A
UNUSUAL FIRE FIGHTING HAZARDS ..... All dusts from grain products are highly explosive at critical air-dust concentrations

## SECTION V REACTIVITY DATA

STABILITY UNSTABLE ☐ STABLE ☒
CONDITIONS TO AVOID.....

INCOMPATIBILITY (MATERIALS TO AVOID) ..... Strong oxidizing agents; moisture; high temperatures

HAZARDOUS DECOMPOSITION OR BYPRODUCTS..... None

HAZARDOUS POLYMERIZATION MAY OCCUR ☐ WILL NOT OCCUR ☒
CONDITIONS TO AVOID.....

## SECTION VI HEALTH HAZARD DATA
**Based on specific concentration as sold**

ROUTE(S) OF ENTRY:
INHALATION ☒ SKIN ☐ INGESTIION ☒

HEALTH HAZARDS (ACUTE AND CHRONIC)..... Individuals with known grain dust allergies or chronic respiratory disease should avoid contact with all dusty conditions

CARCINOGENICITY: ..... No

NPT..... No

OSHA REGULATED..... No

SIGNS AND SYMPTIONS OF EXPOSURE ..... Dust may affect allergies or respiratory problems

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE ..... Dust related problems

EMERGENCY AND FIRST AID PROCEDURES ..... No specific procedures

## SECTION VII PRECAUTIONS FOR SAFE HANDLING AND USE

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED ..... Conventional cleanup

WASTE DISPOSAL METHOD ..... In accordance with Federal, State and Local regulations

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING ..... Store in a cool, dry area

OTHER PRECAUTIONS ..... None

## SECTION VIII CONTROL MEASURES

**Specify whether one or more controls are necessary (alone or in combination)**

RESPIRATORY PROTECTION (SPECIFY TYPE) ..... General all-purpose dust mask if desired

IS RESPIRATORY PROTECTION

☐ NECESSARY ☒ UNNESSARY IF VENTILATION IDENTIFIED BELOW IS USED

VENTILATION

LOCAL EXHAUST ..... Yes
SPECIAL ..... N/A
MECHANICAL (GENERAL) .....
OTHER .....

PROTECTIVE GLOVES ☐ YES (SPECIFY TYPE) ..... Safety glasses a good practice
☒ NO

EYE PROTECTION ☐ YES (SPECIFY TYPE) .....
☒ NO

OTHER PROTECTIVE CLOTHING OR EQUIPMENT ..... None

HYGENIC PRACTICES ..... Good manufacturing practices

IS PROTECTIVE CLOTHING

☐ NECESSARY
☒ UNNECESARY IF OTHER CONTROL MEASURES ARE USED

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# Material Safety Data Sheet

Product Name: AlphaGal 180P
Product Code: EN180.PAA
Date Printed: June 25, 2010

## 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY

| | |
|---|---|
| Product name | AlphaGal 180P |
| Product code | EN180.PAA |
| Description | Microgranular enzyme preparation |
| Use | Processing aid in the food/ beverage/ feed industry |
| Supplier | Kerry Ingredients and Flavours<br>Kilnagleary, Carrigaline, Co. Cork. IRELAND<br>Tel 353 21 4376400 Fax 353 21 4376480 |

## 2. COMPOSITION / INFORMATION ON INGREDIENTS

| | |
|---|---|
| Chemical nature / Synonyms | Alphagalactosidase / Melibiase |
| IUB / EINECS / CAS nos | 3.2.1.22 / 232-792-0 / 9025-35-8 |
| Components contributing to the hazard | Enzyme Protein |
| Concentration range | 1-10 % |
| Classification | Xn, R42, S22 |

## 3. HAZARDS IDENTIFICATION

This product contains microgranular enzyme and therefore the risk associated with inhalation of enzyme dust is significantly reduced. Repeated inhalation of enzyme dust may cause sensitisation and will cause allergic type responses in sensitised individuals. Respiratory symptoms are similar to those of asthma or hayfever. Prolonged skin contact may cause skin irritation.

## 04. FIRST AID MEASURES

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|---|---|
| Inhalation: | Remove from exposure. If irritation or allergic response develops, consult a doctor. |
| Skin contact: | Wash skin with plenty of cold water. |
| Eye contact: | Irrigate eyes with cold water for at least 20 mins. Obtain medical advice if irritation occurs. |
| Ingestion: | Rinse mouth thoroughly with water and drink water afterwards. Consult a doctor. |

## 5. FIRE FIGHTING MEASURES

Suitable fire fighting extinguishing media : water , foam

## 6. ACCIDENTAL RELEASE MEASURES

Personal protective equipment as outlined in section 8 must be used when dealing with accidental release of product. The product is completely biodegradable. Spillages of enzyme products should be dealt with immediately. Remove large spillages by vacuum with a high efficiency filter. Flush remainder with plenty of water. Avoid splashing. Do not use high pressure or steam washing. Provide sufficient ventilation. Wash all contaminated clothing.

 

**7. HANDLING AND STORAGE.**

Airborne dust or aerosols can develop during spillage, material transfers, pumping of air through liquid, vigorous stirring, steam cleaning and high pressure water flushing. Any operation which might create dust or aerosol should take place in areas that are provided with adequate exhaust or other forms of mechanical control systems. It is important to prevent direct contact with skin. Operations which may create spillage and splashing must be avoided. Rubbing of the face and eyes should be avoided when wearing protective gloves that have been in contact with enzyme.

Store product in dry and cool conditions. this product is capable of forming flammable dust clouds in the air, but this hazard is not significant under normal conditions of use in the industry. Source of ignition should br eliminated and build up of dust on floors and equipment avoided.

**8. EXPOSURE CONTROLS / PERSONAL PROTECTION**

Personal protection is necessary in circumstances where there is accidental or uncontained release of product.

| | |
|---|---|
| Respiratory protection: | Respirator approved for solid and liquid particulates including dusts and mists *e.g.* 3M 8810 mask or respirator with P3 filter or equivalents |
| Hand protection: | Impermeable gloves |
| Eye protection: | Protective glasses |

**9. PHYSICAL AND CHEMICAL PROPERTIES**

| | |
|---|---|
| Colour/Physical state: | Brown powder |
| Odour: | Slight fermentation odour |
| Density: | Not available |
| pH | Not applicable |
| Solubility: | Insoluble carrier |
| Flashpoint: | Not applicable |

**10. STABILITY AND REACTIVITY**

This product is stable under normal conditions of use. Enzyme dust, like other dust, can form explosive clouds at concentrations above 50 $g/m^3$. These dust clouds have minimum cloud ignition temperature of 400 $^oC$. No hazardous conditions or decomposition products have been identified.

**11. TOXICOLOGICAL INFORMATION**

Long term experience of this product type indicates no danger to health when properly handled under industrial conditions. Repeated inhalation of enzyme aerosol may cause sensitisation and will cause allergic type reactions in sensitised individuals. Prolonged skin contact may cause irritation.

**12. ECOLOGICAL INFORMATION**

This product type is believed not to be dangerous to the environment. This product is expected to be biodegradable.

**13. DISPOSAL INFORMATION**

Product and contaminated packaging must be disposed of in accordance with local authority regulations.

**Liquid enzymes:**

Surplus liquid / enzyme spills may be disposed of to municipal / waste water treatment plants as it is biodegradable, or in accordance with local authority regulations.

**Liquid enzyme packaging:**

Containers should be drained of excess enzyme residue and rinsed with water. The containers may then be recycled / reused or disposed of as in accordance with local authority regulations.

**Powder enzymes:**

Powder enzymes may be disposed of to landfill / incineration as in accordance with local authority regulations.

**Powder enzyme packaging:**

Care should be taken to ensure that the packaging is free from any enzyme residues before it can be sent for recycling/reuse or further disposal in accordance with local authority regulations.

**14. TRANSPORT INFORMATION**

This product is not a dangerous good according to international regulations for transport.

**15. REGULATORY INFORMATION**

It is a dangerous preparation according to the EC directive 88/379.

Labelling

| | |
|---|---|
| Xn | Harmful |
| R42 | May cause sensitisation by inhalation |
| S22 | Do not breathe dust |

**16. OTHER INFORMATION**

The information contained in this safety data sheet, as of the issue date, is believed to be true and correct. However, the accuracy or completeness of this information and any recommendation or suggestions are made without warranty or guarantee. Since the conditions of use are beyond the control of our company, it is the responsibility of the user to determine the conditions of safe use of this product. The information in this sheet does not represent analytical specifications , for which please refer to our technical data sheet.

The content of this Safety Data Sheet complies with both the EC directive 2001/58/EC and ISO standard ISO 11014-1 and is recommended by the Association of Manufacturers and Formulators of Enzyme Products. (AMFEP)

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